IDENTIFICATION OF A SUPPOSEDLY ANOMALOUS ECHINODERM.*

In 1902 Dr. Hubert Lyman Clark described, under the title of "An Extraordinary Animal,"† a very curious creature, evidently an echinoderm, which he was unable to place satisfactorily. He says that "it probably is an echinoderm, but whether an echinoid or a holothurian I am unable to decide * * * The whole external appearance of the lower part of the animal is * * * quite similar to the body of the holothurians, *Sphærothuria* or *Echinocucumis*. But the spines when examined under the microscope appear more like echinoid spines * * * There can be little doubt that the specimen is a monstrosity, but of what? My own opinion is that it is a holothurian, related to *Sphærothuria*, but the spines and the 'digestive tube' (?) are very much like those of an echinoid.—The most puzzling question to me is, how did an animal with apparently no mouth or anus and no means of locomotion reach such a considerable size?"

The specimen is preserved in the U. S. National Museum (Cat. No. 19,899) and, as it seemed to me desirable to identify it positively if possible, I recently undertook an independent study of it.

As Doctor Clark's description is not quite accurate in certain details, I offer the following supplementary notes.

General Form.—The specimen is composed of two quite distinct portions, a larger, ovoid in outline with the greater diameter 13 mm. and the lesser 11.5 mm., in end view circular, 11.5 mm. in diameter; and a smaller, broken away on one side, consisting of a very irregular half cylinder with the ends more or less in-curved, measuring 12 mm. in length and 5.5 mm. in width, which is attached to one side of the larger part in the direction of the longer axiis, nearer the smaller than the larger end. The border of the larger part opposite the attachment of the smaller is slightly flattened.

Covering of the Larger Part.—The larger portion is entirely enclosed in irregular polygonal plates of various sizes, each of which bears from one to six (usually from one to three) jointed spines, and a few in addition a pedicellaria, which superficially resembles a short, small rounded-conical spine. The spines, most of which are broken, appear to be cylindrical, with a more or less abrupt conical tip. Within the area delimited by the smaller part and the missing portion the investment consists of a smooth pavement of very irregular polygonal plates which are somewhat smaller than those of the free wall.

Covering of the Smaller Part.—The smaller portion is composed, insofar as it is preserved, of six columns of narrow elongate plates which carry long spines, longer than the spines on the surface of the larger part, in a single median row, but no pedicellariæ. The six columns are webbed by perisome, which may carry a few additional plates. Extending laterally from the first and sixth of these columns are two horizontal rows of

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† Zool. Anzeiger, vol. **25**, 1902, pp. 509–511, fig. p. 510.

similar plates, the more distal of which lie about half way from the base to the outer edge of the entire smaller portion as viewed laterally. On both sides the surface is torn away in the angle between the outermost of the vertical columns, and the uppermost of the horizontal rows. To the left the horizontal rows terminate in a torn edge; to the right they become lost in a maze of plates similar to those of the surface of the larger portion.

Inner Structure of the Larger Part.—The larger portion is a completely enclosed sac, showing no evidence of communication either with the exterior or with the interior of the smaller portion. Within it I can find nothing but a thick irregular lining of connective tissue, on the surface of which is an elongate depression, evidently mistaken by Dr. Clark for the lumen of a digestive tube.

Inner Structure of the Smaller Part.—The interior of the smaller portion is mostly occupied by gonads, lying along its longer axis. But I also found a relatively large sac-like structure and part of another near the broken end of the columns.

Identification of the Specimen.—The features which offer the greatest possibilities for the determination of the specimen are (1) the arrangement of the plates on both the larger and the smaller portions, (2) the character and distribution of the spines, and (3) the character and distribution of the pedicellariæ.

The pedicellariæ are of the type found in the Brisingidæ.

The arrangement of the plates on the larger portion and the distribution of the spines and of the pedicellariæ on these plates, as well as the character of the spines, are identical with the same features in certain species of *Brisinga*.

The arrangement of the columns of plates in the smaller portion, and the character of these plates and of the spines which they bear, are exactly duplicated in the arm bases of certain species of *Brisinga*.

Furthermore the gonads, which are very *Brisinga*-like, lie in the same relation to these plates that they do to the dorsal arm plates of the species of *Brisinga;* and the sac-like structures are very like the rather large *Brisinga* ampullæ.

As all the tangible characters of the specimen are identical with comparable characters in the genus *Brisinga*, and are not duplicated in any other genus of echinoderms, least of all in the echinoids and holothurians, it seems evident that we are dealing with a large cyst-like outgrowth from the base of a *Brisinga* arm.

A large species of *Brisinga*, in its details agreeing perfectly with comparable features of the specimen, was taken at the same dredge-haul; furthermore, many of the specimens of this *Brisinga* bore cyst-like outgrowths on the arm bases containing a curious type of degenerate mollusc.

There can be not the slightest doubt that this supposedly anomalous echinoderm type is merely a detached cyst, with part of the dorsal surface of the arms and the underlying gonads, from the species of *Brisinga* dredged at "Albatross" Station 3342, from which the parasite has been removed. —*Austin H. Clark.*